Remarks

Claims 1-21 are pending in the application. Claims 1-21 are rejected. Claims 1 and 19 are amended to more precisely claim what is new and not to change the scope what is claimed. All rejections are respectfully traversed.

The Specification is objected to. The Specification is amended to correct the informalities. No new subject matter is added. Claim 17 is objected to. Claim 17 is amended to correct the informality. No new subject matter is added.

A method detects movement of users in an environment at the sensors. Each event is labeled according to a particular sensor that detected the event and the time of the event. The events for each sensor are summed into a corresponding histogram time interval bin associated with the sensor. Co-occurrence matrices are generated from the histograms, according to $C_{i,j,\delta} = \sum_{t=o}^{T} H_{i,t} H_{j,t+\delta}$, where i and j represent each possible pair of sensors, δ represent time off-sets, T is a total time for the detecting, t represents a particular time, and H represents the histogram time interval bins.

Claims 1-9, 11-14 and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stauffer and Grimson, "Learning Patterns of Activity Using Real Time Tracking" (Stauffer) in view of Lee, Romano and Stein, "Monitoring Activities from Multiple Video Streams: Establishing a Common Coordinate Frame" (Lee).

Stauffer in combination with Lee teaches ***what*** events are. Claimed is ***where*** events occur. What can never make where obvious. Applicant will now explain the difference between what and where in greater detail.

Stauffer detects objects with cameras. The objects are classified according to shape, appearance or motion to determine what the objects are, e.g., the objects are vehicles or people. Then, daily activity histograms are constructed for the different classes of **objects**. For example, one histogram shows car objects, and another histogram shows people objects. The claimed invention works quite differently than Stauffer. The claimed invention does not classify the objects that are detected. Instead, the claimed invention labels the events according to the **sensor** that detected the event. Thus, the event labels in Staffer and what is claimed can be distinguished:

Stauffer: event [**object**, time]
Invention: event [**sensor**, time]

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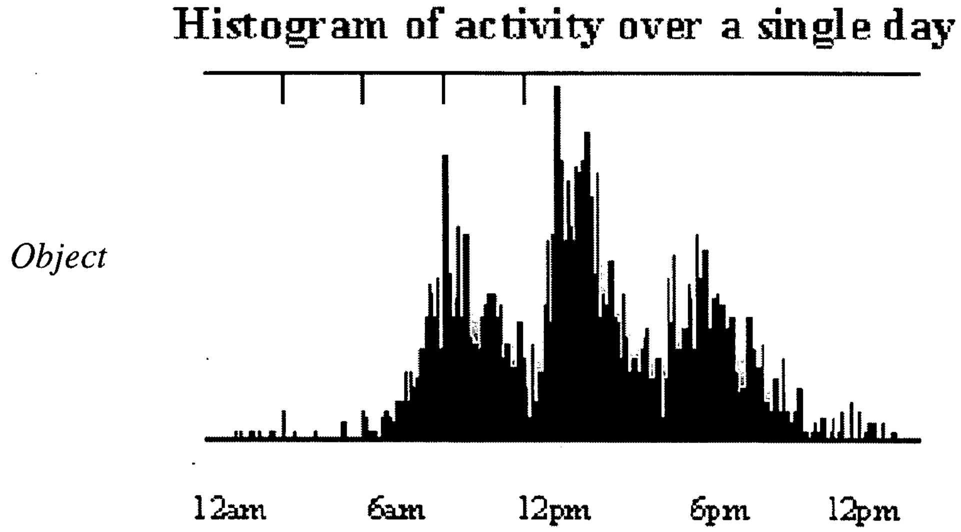
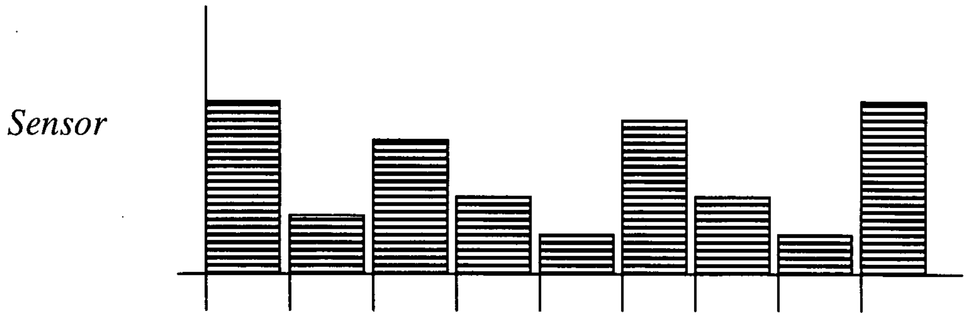
Because of this fundamental difference, the histograms produced by Stauffer and the invention are quite different:

Stauffer



Invention



Therefore, Stauffer cannot generate the co-occurrence matrices as claimed.

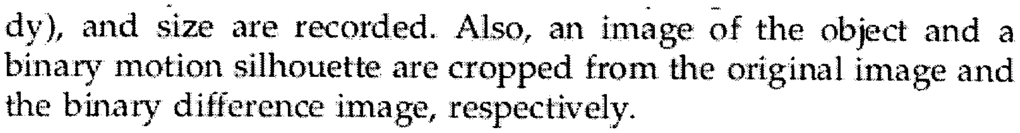
The co-occurrences described in Stauffer have nothing to do with pairs of sensors as claimed. Instead, the co-occurrences of Stauffer have to do with input symbols during a classification process for the objects. Lee does not cure the multiple fatal defects of Stauffer. The focus of Lee is on camera calibration.

The claimed sensors have a one bit resolution to detect the events, e.g., “0” represents no event detected, and “1” is a detected event. Stauffer’s cameras can never have a one bit resolution. A camera that outputs only one bit is not a camera.

The Examiner states:

> As to claim 7, Stauffer discloses a method in which the sensors have a resolution of one bit to detect the events (see "binary" in page 752, col. 1, Section No. 6, lines 4–6).

Indeed, the Applicant does find the word “binary” in Stauffer at page 752.



> dy), and size are recorded. Also, an image of the object and a binary motion silhouette are cropped from the original image and the binary difference image, respectively.

However, with all due respect, the invention does not claim “binary” as disclosed by Stauffer. The “binary” in Staffer has to do with a motion silhouette. In the art and as used by Stauffer, a motion silhouette is typically obtained by background subtraction or “binary differencing.” In a silhouette image, pixels in portions of the image corresponding to the background are typically represented by “0” and foreground pixels are “1.” Hence, the term “binary image.”

The "lighting" in Stauffer at page 757 refers to lighting incident on the scene. The claimed sensing modality pertains to the energy detected by the sensor.

The self-calibration in Stauffer refers to *position* of a camera with respect to the scene. Claimed are distances between pairs of sensors. The ground model in Stauffer is not computed from the positions of the cameras. Furthermore, Stauffer does not compute a geometry of his cameras. As stated above, Stauffer only determines *what* and not *where*.

Stauffer constructs a site model. Stauffer does not provide any specific information for where the site model comes from, and certainly, Stauffer does not describe the geometry of his sensors.

Applicant cannot find anything in Lee that describes the claimed "… in which the summed events include peaks, and each peak reflects a relative time off-set between a particular pair of sensors."

As stated above, Stauffer does not map distances between sensors. With all due respect, scaling as claimed is a term of art that pertains to size, e.g., large scale or small scale, and not velocity.

As stated above, the co-occurrence matrices as claimed are not described by Stauffer. Further, there is nothing in Stauffer that predicts future activities.

The probability distributions described below have to do with prototypes.

> Once the parameters for the pmfs have been determined, any exclusive set of them can be used as classifiers. An exclusive set of prototypes can be determined by using the leaf nodes of any pruned version of the binary tree. We prune after any node whose children's distributions similarity exceeds a threshold, although Fig. 7 shows a complete tree before the pruning for evaluation purposes. All leaf nodes are associated with a probability distribution across the prototypes that can now be used to classify sequences.

The reasoning above can also be applied to the rejections of claims 19-21.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stauffer in view of Lee as applied to claim 14, and further in view of Caspi and Irani, "Alignment of Non-Overlapping Sequences" (Caspi).

Caspi cannot cure the defects of Stauffer and Lee.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stauffer in view of Lee as applied to claim 14, and further in view of Steyvers, "Multidimensional Scaling" (Steyvers).

Applicant cannot find the claimed stress measure formulation, $\Phi = \sum \lfloor d_{ij} - f(\delta_{ij}) \rfloor$, in Steyvers. At page 2, column 1, lines 1-3, Steyvers discloses:

$$S = \sqrt{\frac{\sum_{ij} \left(d_{ij} - d_{ij}^{*}\right)^{2}}{\sum_{ij} d_{ij}^{2}}}$$

which is not the same as the claimed stress measure formulation.

It is believed that this application is now in condition for allowance. A notice to this effect is respectfully requested. Should further questions arise concerning this application, the Examiner is invited to call Applicant's attorney at the number listed below. Please charge any shortage in fees due in connection with the filing of this paper to Deposit Account 50-0749.

Respectfully submitted,
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